

CLASSIFICATION OF ORGANISMS

Systematics

Read the passage below, which covers topics from your textbook.

Answer the questions that follow.

One relatively new system of phylogenetic classification is called **cladistics**. Cladistics uses certain features of organisms, called shared derived characters, to establish evolutionary relationships.

A **derived character** is a feature that apparently evolved only within the group under consideration. For example, if the group being considered is birds, one example of a derived characteristic is feathers. Most animals do not have feathers; birds are the only animals that do. Therefore, it is safe to assume that feathers evolved within the bird group and were not inherited from some distant ancestor of the birds.

Cladistic taxonomists agree that organisms that share a derived character—like feathers—probably share it because they inherited it from a common ancestor. So shared derived characters, particularly a *group* of several shared derived characters, are strong evidence of common ancestry between organisms that share them. Ancestry diagrams made by means of cladistic analysis are called **cladograms**.

Read each question and write your answer in the space provided.

Identifying Main Ideas

1. What is the main idea of the passage? _____

2. What derived character is identified in the passage? _____

Circle the letter of the phrase that best completes the statement.

3. As the number of shared derived characters increases among organisms, the likelihood that the organisms

a. lack a common ancestry increases. c. share a common ancestry increases.

b. belong to the same species increases. d. Both (b) and (c)